Amendments to the Claims:

The following listing of claims replaces all prior versions and listings of the claims in this application.

Listing of the Claims

1. (Currently amended) A method for proliferating cardiomyocytes comprising: introducing nucleotide sequences coding for ~~a nuclear localization signal,~~ a D-type cyclin gene and a cyclin dependent kinase gene directly into the cardiomyocytes using a vector, and cultivating or holding said cardiomyocytes ~~cells~~,

wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3, ~~and~~

wherein said cyclin dependent kinase gene is a gene coding for CDK4 or CDK6, and

wherein a nucleotide sequence coding for a nuclear localization signal is attached to at least one of said cyclin gene or said cyclin dependent kinase gene.

2. (Currently amended) A method for proliferating cardiomyocytes comprising: ~~adding~~ introducing nucleotide sequences coding for ~~a nuclear localization signal to at least one~~ a D-type cyclin gene and a cyclin dependent kinase gene~~; and introducing each of said genes~~ into cardiomyocytes *in vitro*, and then cultivating said cardiomyocytes ~~cells~~, or introducing each of said genes directly to cardiomyocytes *in vivo* using a vector,

wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3, ~~and~~

wherein said cyclin dependent kinase gene a gene coding for is CDK4 or CDK6, and

wherein a nucleotide sequence coding for a nuclear localization signal is attached to at least one of said cyclin gene or said cyclin dependent kinase gene.

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Previously presented) The method of claim 2, wherein said cyclin gene and said cyclin dependent kinase gene are transferred to the cardiomyocytes using an adenovirus vector.

7. (Withdrawn) A recombinant vector comprising a cyclin gene comprising a nucleotide sequence coding for a nuclear localization signal.

8. (Withdrawn) A recombinant vector comprising a cyclin gene and a cyclin dependent kinase gene, wherein at least one of said genes is attached with a nucleotide sequence coding for a nuclear localization signal.

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Currently amended) The method of claim 2, wherein said genes comprising said nucleotide sequences are introduced to the cardiomyocytes *in vitro*, and cultivating said cardiomyocytes ~~cells~~.

17. (Previously presented) The method of claim 2, wherein said genes comprising said nucleotide sequences are introduced to the cardiomyocytes *in vivo*.

18. (Previously presented) The method of claim 1 or 2, wherein said cyclin activates CDK4.

19. (Previously presented) The method of claim 1 or 2, wherein said cyclin activates CDK6

20. (Previously presented) The method of claim 2, wherein said cyclin is D1.

21. (Previously presented) The method of claim 1, wherein the cyclin is D2 or D3.

22. (Previously presented) The method of claim 2, wherein the cyclin is D2 or D3.

23. (Previously presented) The method of claim 1, wherein the cyclin dependent kinase is CDK4.

24. (Previously presented) The method of claim 1, wherein the D-type cyclin is D1.

25. (Previously presented) The method of claim 16, wherein the cyclin dependent kinase is CDK4.

26. (Previously presented) The method of claim 16, wherein the D-type cyclin is D1.

27. (Previously presented) The method of claim 16, wherein the cyclin dependent kinase is CDK4 and the D-type cyclin is D1.

28. (Previously presented) The method of claim 17, wherein the cyclin dependent kinase is CDK4.

29. (Previously presented) The method of claim 17, wherein the D-type cyclin is D1.

30. (Previously presented) The method of claim 17, wherein the cyclin dependent kinase is CDK4 and the D-type cyclin is D1.

31. (Previously presented) The method of claim 17, wherein the D-type cyclin and cyclin dependent kinase are transferred to the cardiomyocytes using a viral vector.

32. (Previously presented) The method of claim 1, wherein the D-type cyclin and cyclin dependent kinase are introduced into the nucleus of the cardiomyocytes using a viral vector.

33. (Previously presented) The method of claim 2, wherein the D-type cyclin and cyclin dependent kinase are transferred to the cardiomyocytes using a viral vector.

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Currently amended) A method for proliferating cardiomyocytes *in vitro* comprising: introducing nucleotide sequences coding for ~~a nuclear localization signal,~~ a D-type cyclin and a recombinant cyclin dependent kinase gene directly into the cardiomyocytes using a vector, and cultivating or holding said cardiomyocytes ~~cells~~,

wherein said cyclin gene is a gene coding for cyclin D1, D2 or D3, ~~and~~

wherein said cyclin dependent kinase gene is a gene coding for CDK4 or CDK6, and

wherein a nucleotide sequence coding for a nuclear localization signal is attached to at least one of said cyclin gene or said cyclin dependent kinase gene.

38. (Currently amended) A method for proliferating cardiomyocytes *in vivo* comprising: ~~adding~~ introducing nucleotide sequences coding for ~~a nuclear localization signal to at least one~~ a D-type cyclin gene and a cyclin dependent kinase gene~~; and introducing each of said genes~~ directly to cardiomyocytes *in vivo* using a viral vector,

wherein said cyclin is cyclin D1, D2 or D3, ~~and~~

wherein said cyclin dependent kinase is CDK4 or CDK6, and

wherein a nucleotide sequence coding for a nuclear localization signal is attached to at least one of said cyclin gene or said cyclin dependent kinase gene.

39. (New) The method of claim 1, wherein said cyclin gene and said cyclin dependent kinase gene are transferred to the cardiomyocytes using an adenovirus vector.